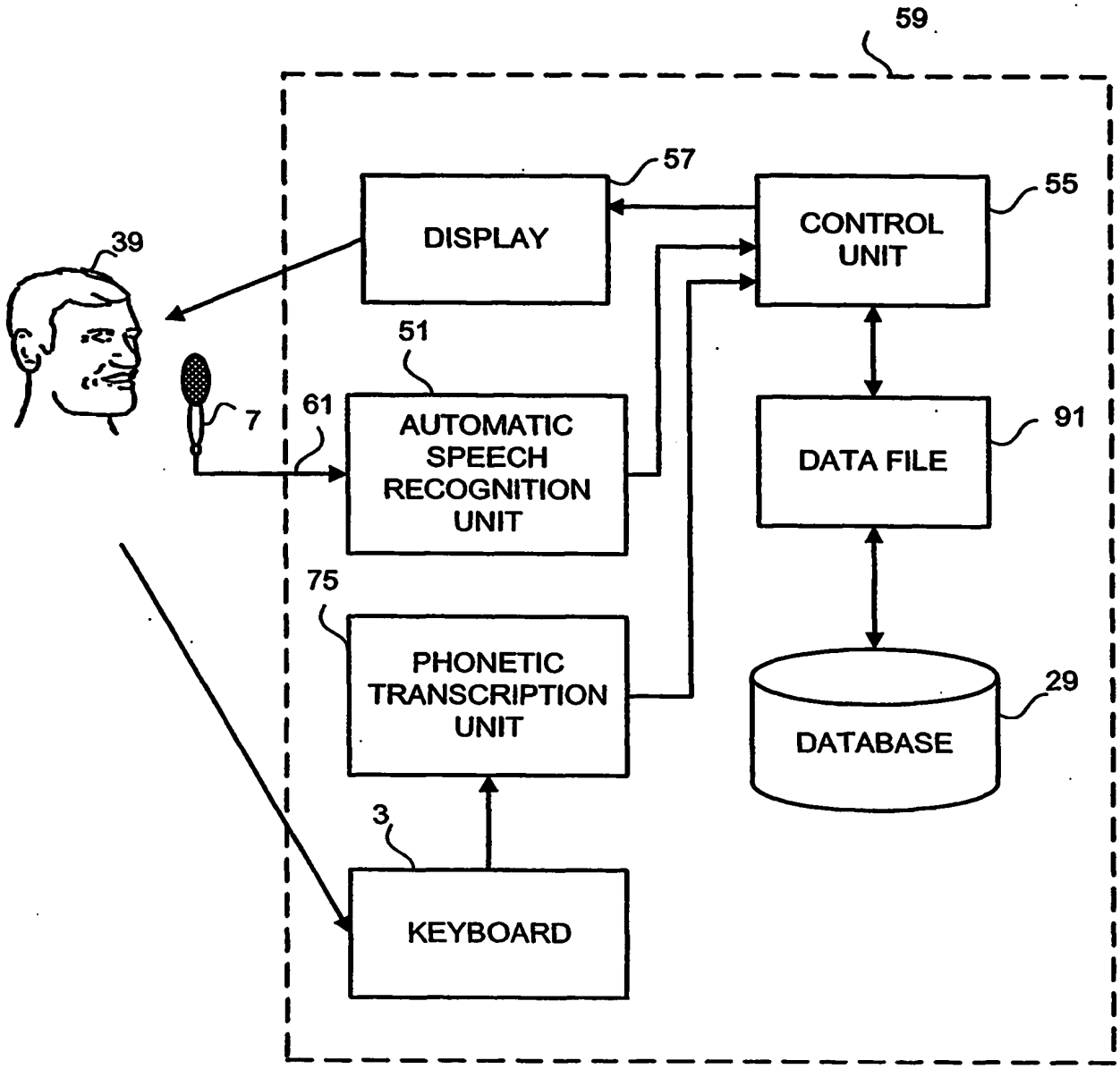

59
57
DISPLAY
55
CONTROL UNIT
39
51
7
61
AUTOMATIC SPEECH RECOGNITION UNIT
91
DATA FILE
75
PHONETIC TRANSCRIPTION UNIT
29
DATABASE
3
KEYBOARD

Fig. 1

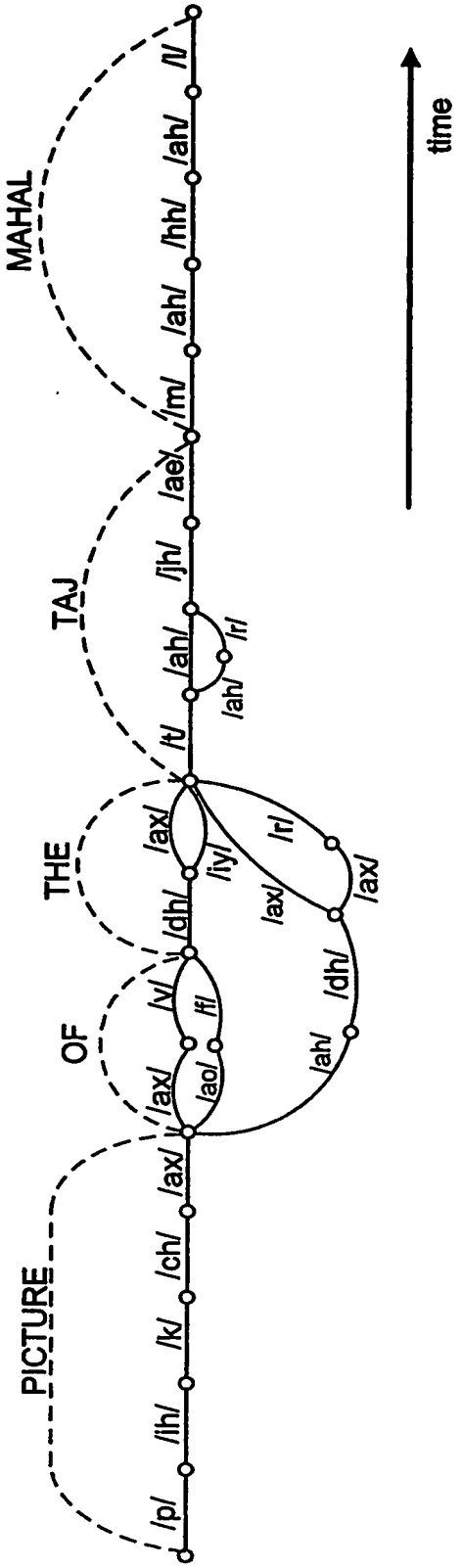
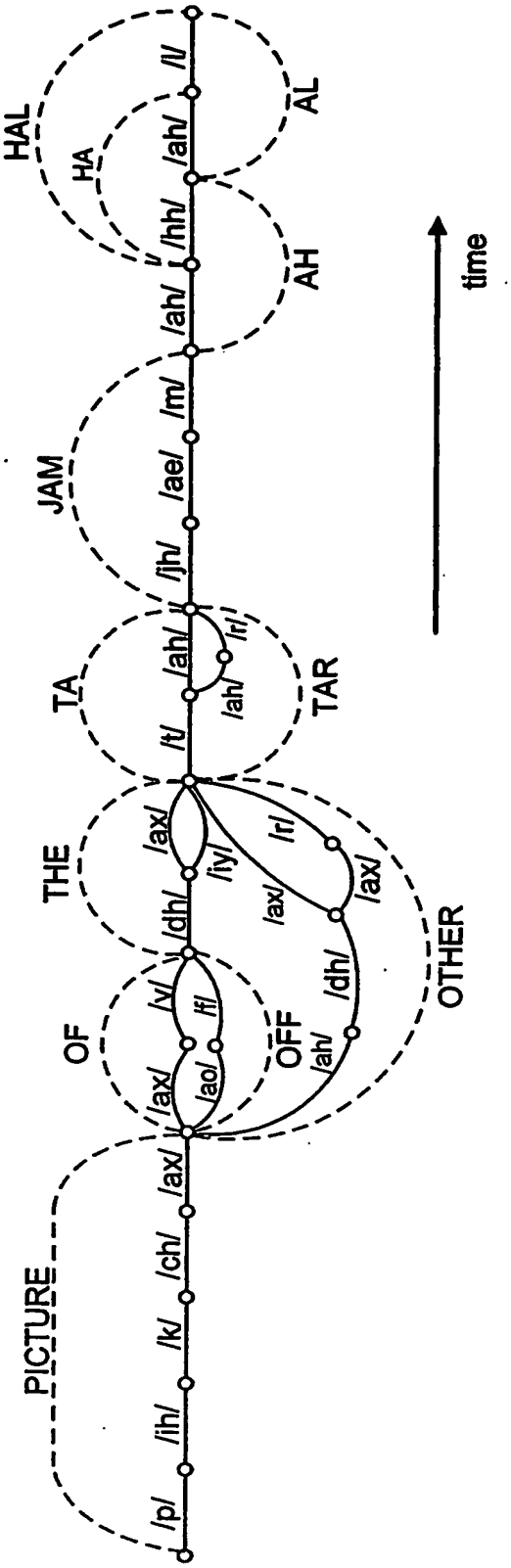

PICTURE
/p/
/ih/
/k/
/ch/
/ax/
OF
/ax/
/ao/
/ah/
/f/
/v/
THE
/dh/
/ax/
/iy/
/r/
/ax/
/dh/
/ah/
TAJ
/t/
/ah/
/r/
/ah/
/jh/
/ae/
/m/
/ah/
/hh/
/ah/
/l/
MAHAL
time

Fig. 2


PICTURE
/p/
/ih/
/k/
/ch/
/ax/
/ax/
OF
/ax/
/ao/
/f/
/v/
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/iy/
/ax/
TA
/t/
/ah/
/r/
/ah/
JAM
/jh/
/ae/
/m/
/ah/
AH
/hh/
/ah/
HA
HAL
/l/
AL
TAR
OFF
/ah/
/dh/
/r/
/ax/
/ax/
OTHER
time

Fig. 3

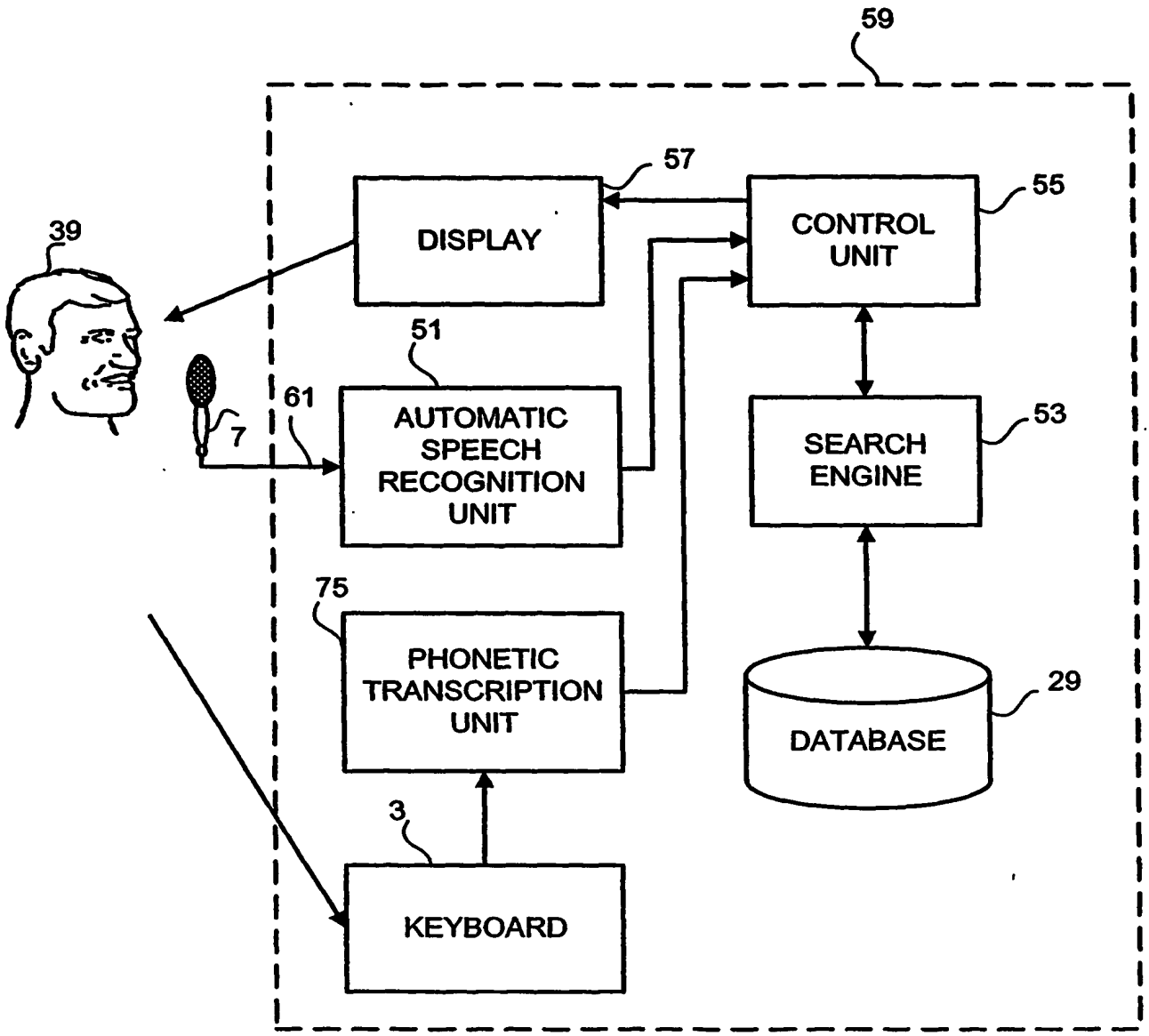
59
57
DISPLAY
55
CONTROL UNIT
39
51
61
7
AUTOMATIC SPEECH RECOGNITION UNIT
SEARCH ENGINE
53
75
PHONETIC TRANSCRIPTION UNIT
29
DATABASE
3
KEYBOARD

Fig. 4

Fig. 5a
Fig. 5b

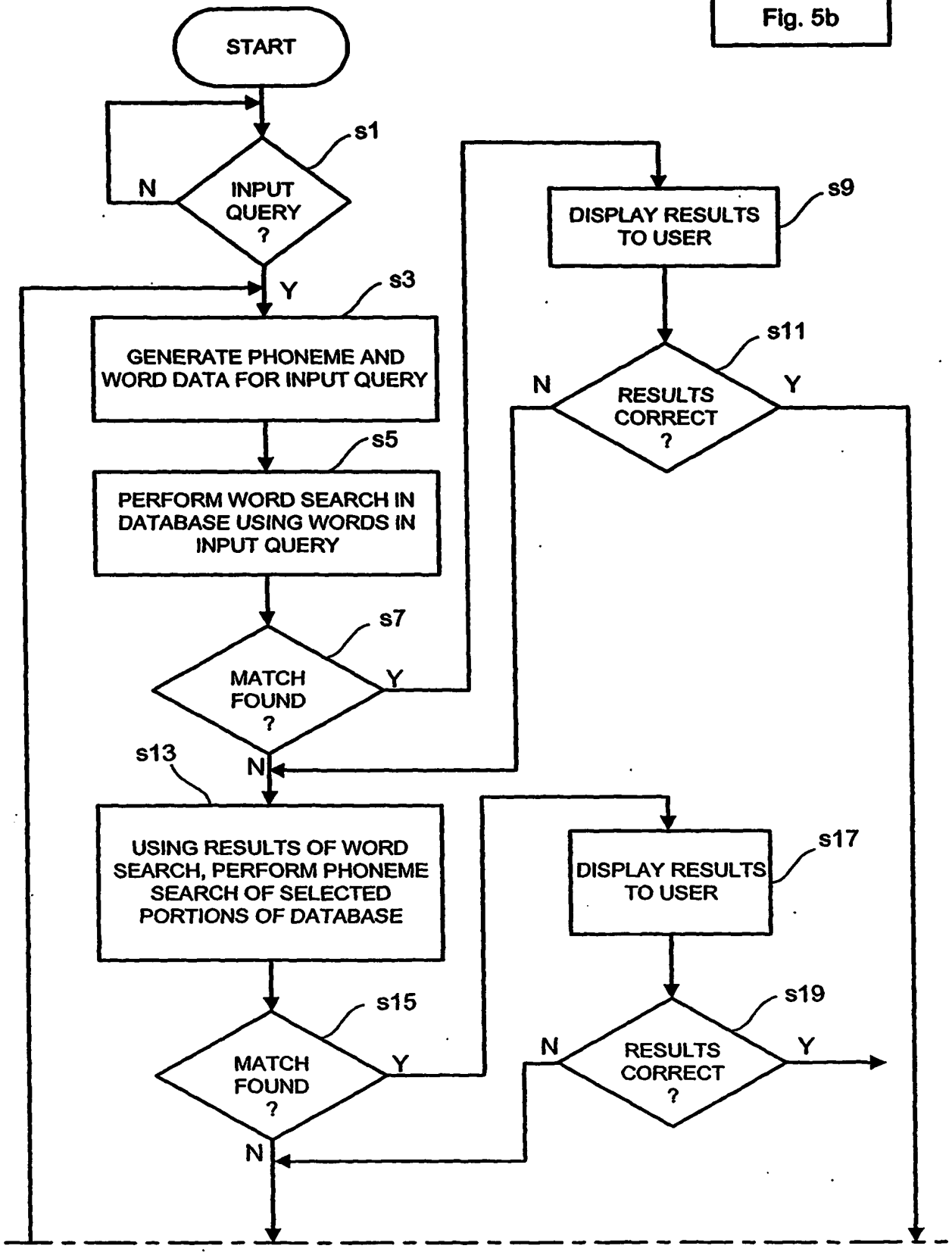

Fig. 5a

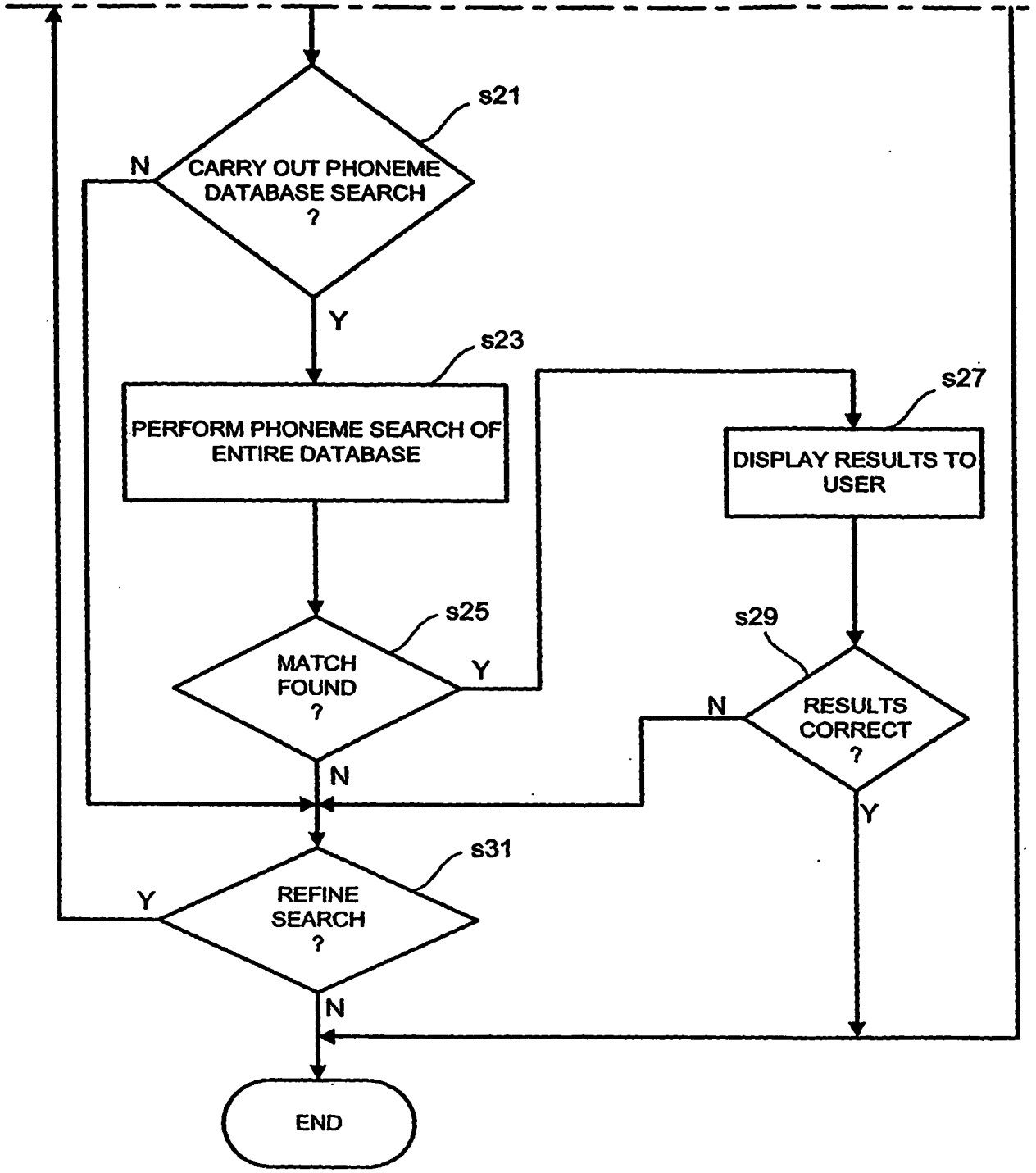
s21
CARRY OUT PHONEME DATABASE SEARCH ?
N
Y
s23
PERFORM PHONEME SEARCH OF ENTIRE DATABASE
s25
MATCH FOUND ?
Y
N
s27
DISPLAY RESULTS TO USER
s29
RESULTS CORRECT ?
N
Y
s31
REFINE SEARCH ?
Y
N
END

Fig. 5b

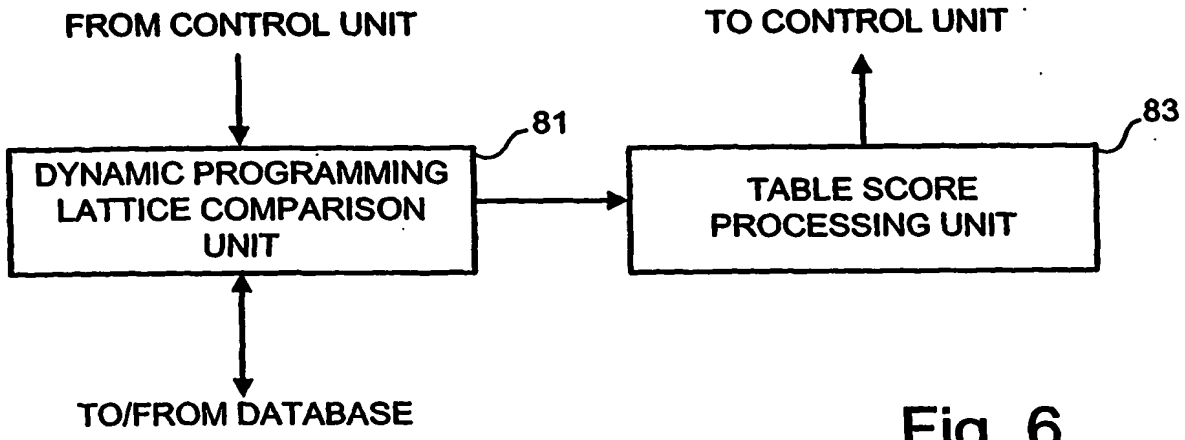

Fig. 6

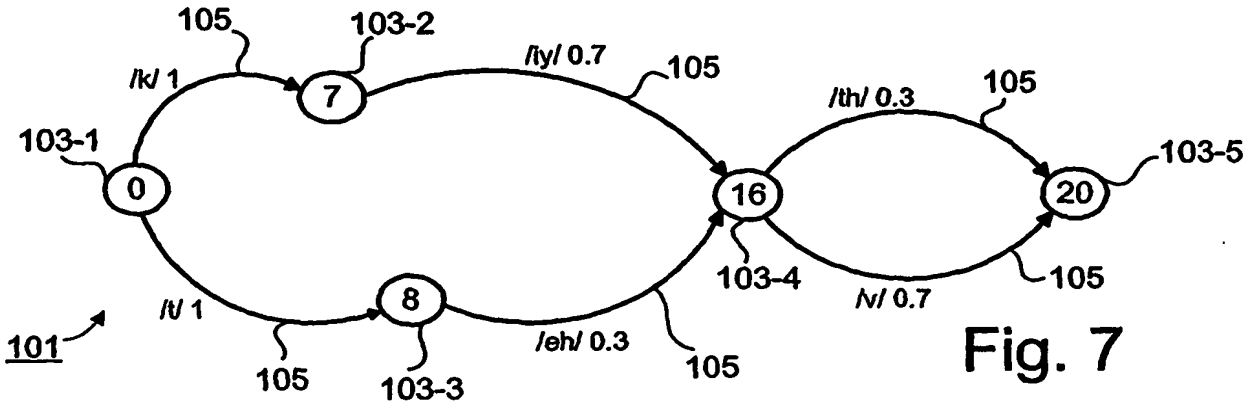

Fig. 7

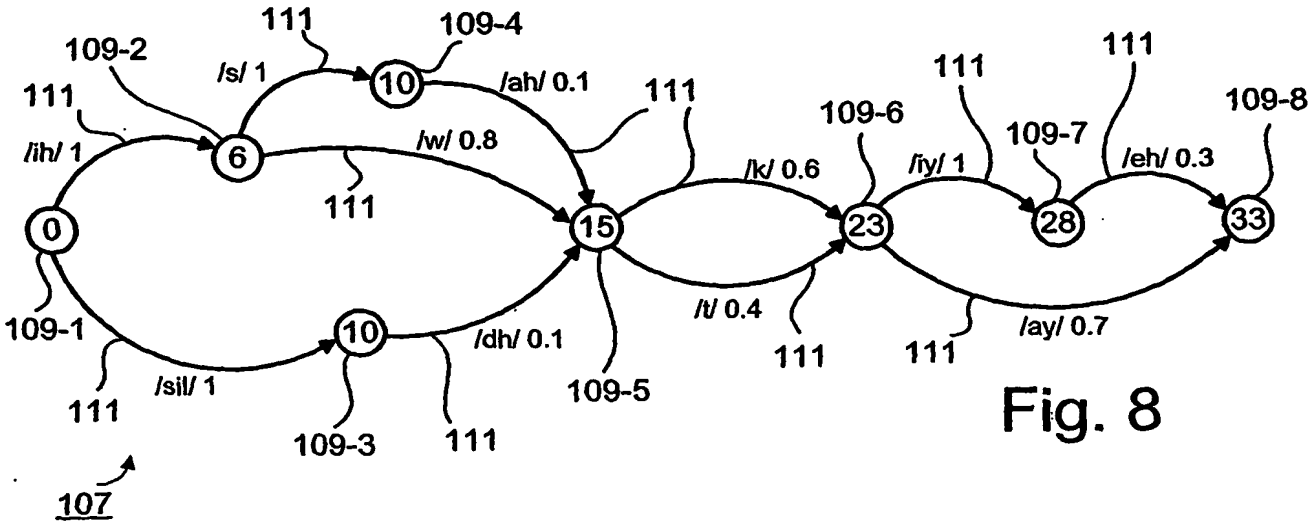

Fig. 8

INDEX	SCORE
0 (0)	S_0
1 (6)	S_1
2 (10)	S_2
3 (15)	S_3
4 (23)	S_4
5 (28)	S_5
6 (33)	S_6

121

Fig. 9

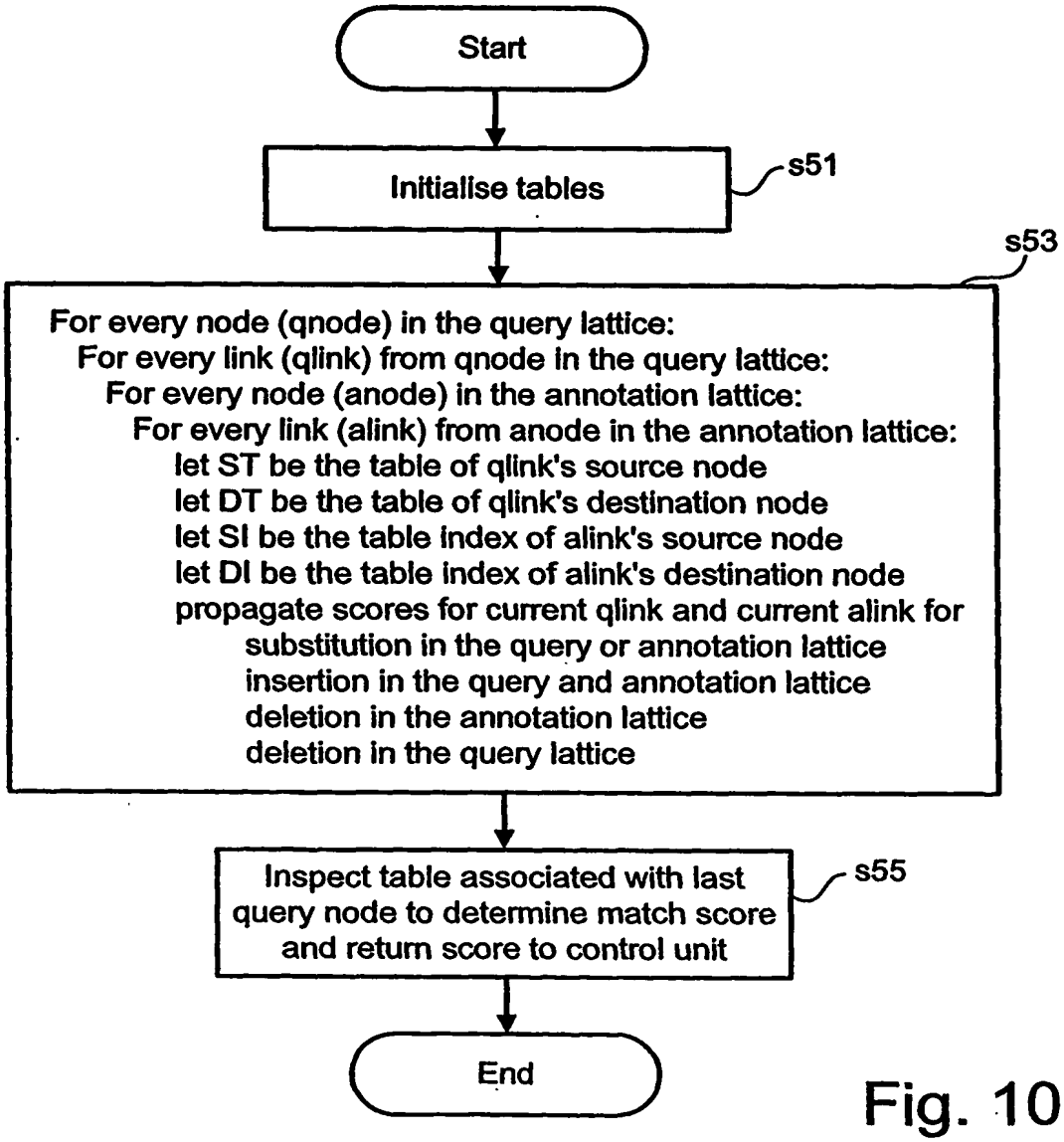

Fig. 10

121-ST

INDEX	SCORE
0 (0)	0
1 (6)	0
2 (10)	0
3 (15)	0
4 (23)	0
5 (28)	0
6 (33)	0

121-DT

SCORE	INDEX
-1e+38	0 (0)
-1e+38	1 (6)
-1e+38	2 (10)
-1e+38	3 (15)
-1e+38	4 (23)
-1e+38	5 (28)
-1e+38	6 (33)

Fig. 11a

DT[1] = MAX(DT[1], ST[0] + log(1) + log(0.6) + log(P(insert /ih/)) + log(P(insert /k/))) = a

121-ST

INDEX	SCORE
0 (0)	0
1 (6)	0
2 (10)	0
3 (15)	0
4 (23)	0
5 (28)	0
6 (33)	0

121-DT

SCORE	INDEX
-1e+38	0 (0)
a	1 (6)
-1e+38	2 (10)
-1e+38	3 (15)
-1e+38	4 (23)
-1e+38	5 (28)
-1e+38	6 (33)

Fig. 11b

DT[1] = MAX(DT[1], ST[0] + log(1) + log(0.6) + log(P(/ih/ sub with /k/))) = b

121-ST

INDEX	SCORE
0 (0)	0
1 (6)	0
2 (10)	0
3 (15)	0
4 (23)	0
5 (28)	0
6 (33)	0

121-DT

SCORE	INDEX
-1e+38	0 (0)
b	1 (6)
-1e+38	2 (10)
-1e+38	3 (15)
-1e+38	4 (23)
-1e+38	5 (28)
-1e+38	6 (33)

Fig. 11c

DT[1] = MAX(DT[1], ST[0] + log (1) + log(0.6) + log(P(/k/ sub with /ih/))) = c

121-ST

INDEX	SCORE
0 (0)	0
1 (6)	0
2 (10)	0
3 (15)	0
4 (23)	0
5 (28)	0
6 (33)	0

121-DT

SCORE	INDEX
-1e+38	0 (0)
c	1 (6)
-1e+38	2 (10)
-1e+38	3 (15)
-1e+38	4 (23)
-1e+38	5 (28)
-1e+38	6 (33)

Fig. 11d

DT[0] = MAX(DT[0], ST[0] + log(0.6) + log(P(delete /k/))) = d

121-ST

INDEX	SCORE
0 (0)	0
1 (6)	0
2 (10)	0
3 (15)	0
4 (23)	0
5 (28)	0
6 (33)	0

121-DT

SCORE	INDEX
d	0 (0)
c	1 (6)
-1e+38	2 (10)
-1e+38	3 (15)
-1e+38	4 (23)
-1e+38	5 (28)
-1e+38	6 (33)

Fig. 11e

ST[1] = MAX(ST[1], ST[0] + log(1) + log(P(delete /ih/))) = e

121-ST

INDEX	SCORE
0 (0)	0
1 (6)	e
2 (10)	0
3 (15)	0
4 (23)	0
5 (28)	0
6 (33)	0

121-DT

SCORE	INDEX
d	0 (0)
c	1 (6)
-1e+38	2 (10)
-1e+38	3 (15)
-1e+38	4 (23)
-1e+38	5 (28)
-1e+38	6 (33)

Fig. 11f

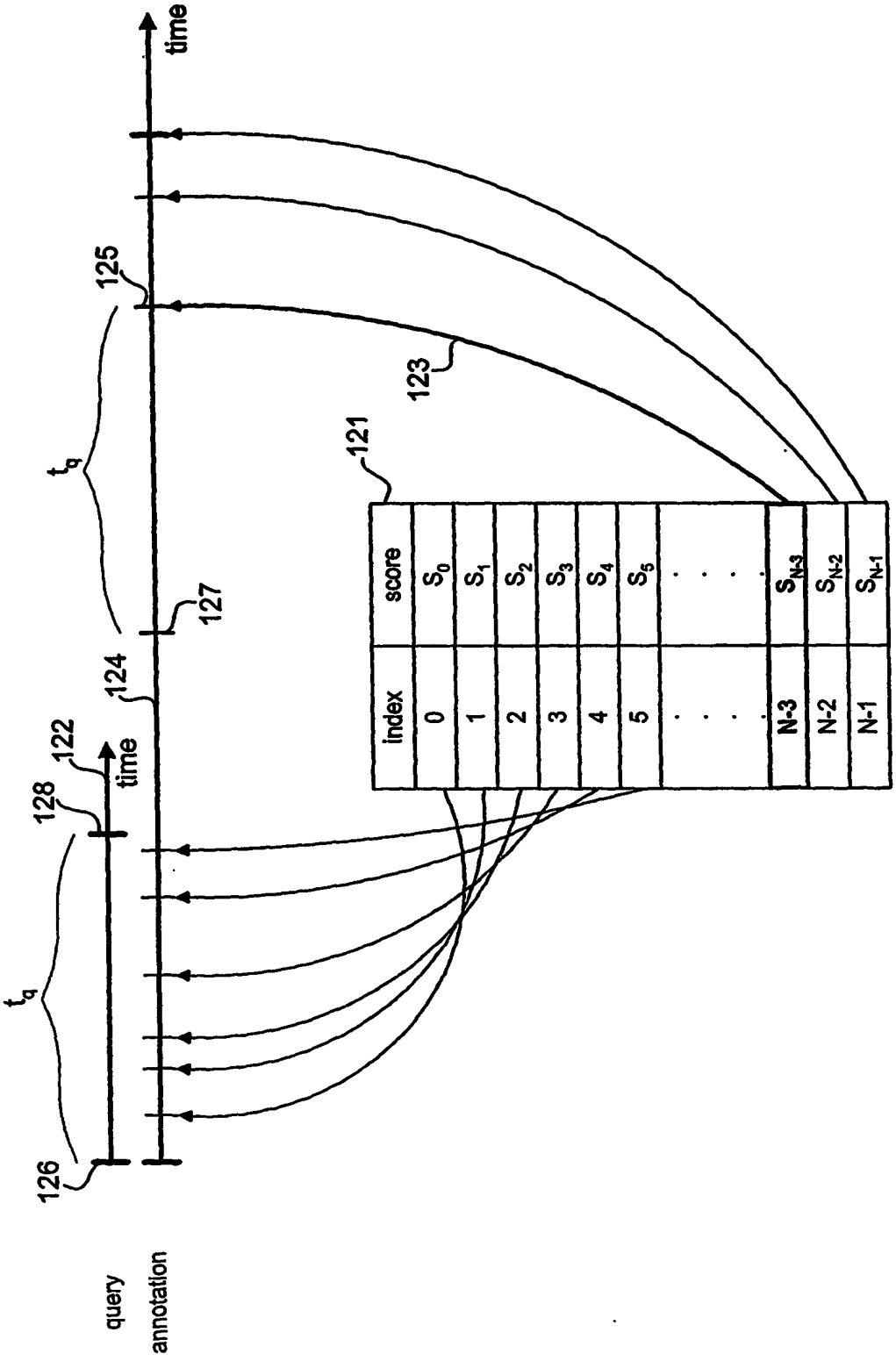
time
125
123
121
index
score
0
1
2
3
4
5
N-3
N-2
N-1
S_0
S_1
S_2
S_3
S_4
S_5
S_{N-3}
S_{N-2}
S_{N-1}
t_q
127
124
122
time
128
t_q
126
query
annotation

Fig. 12

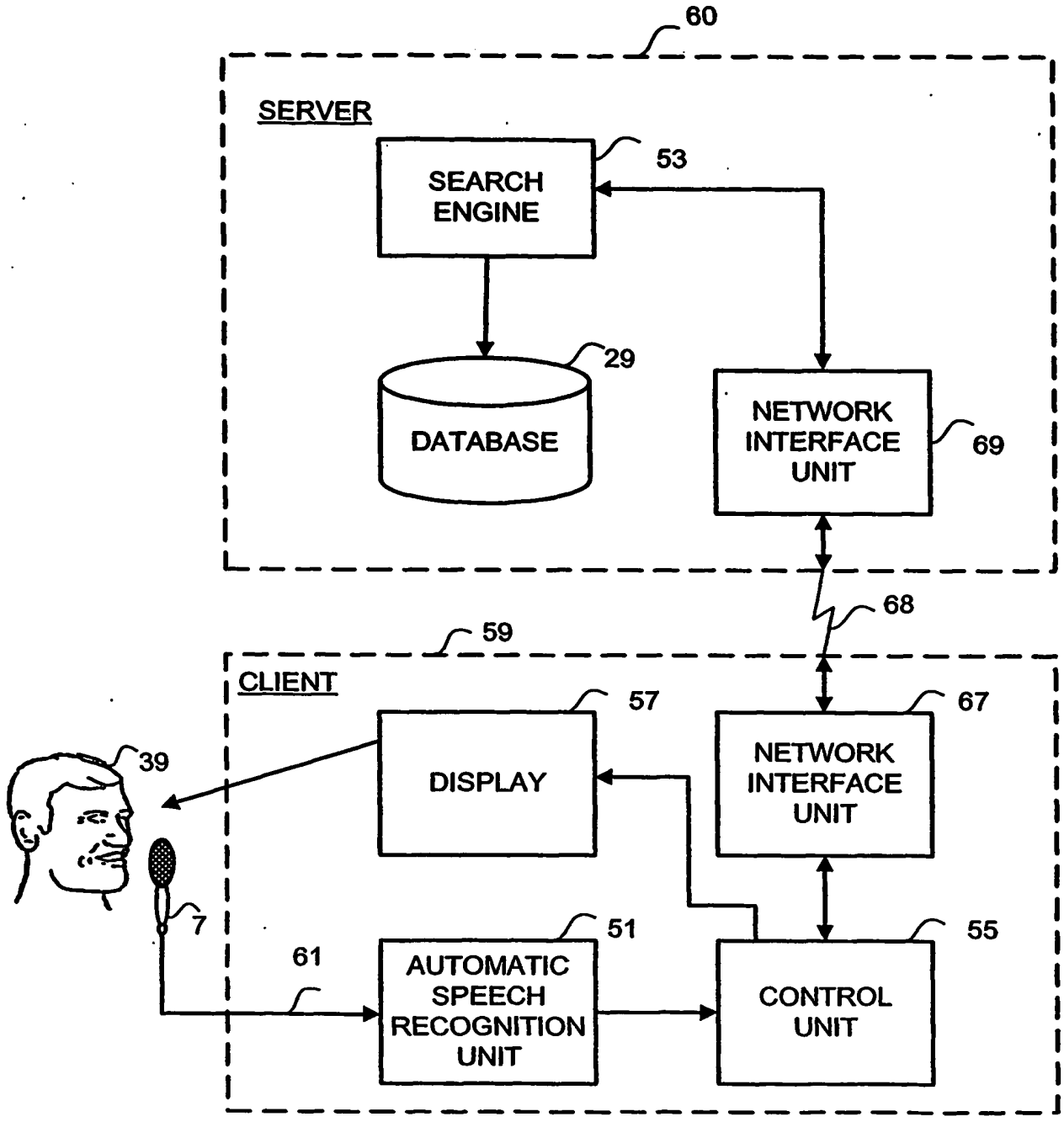
60
SERVER
SEARCH ENGINE
53
29
DATABASE
NETWORK INTERFACE UNIT
69
68
59
CLIENT
57
DISPLAY
67
NETWORK INTERFACE UNIT
39
7
61
51
AUTOMATIC SPEECH RECOGNITION UNIT
55
CONTROL UNIT

Fig. 13

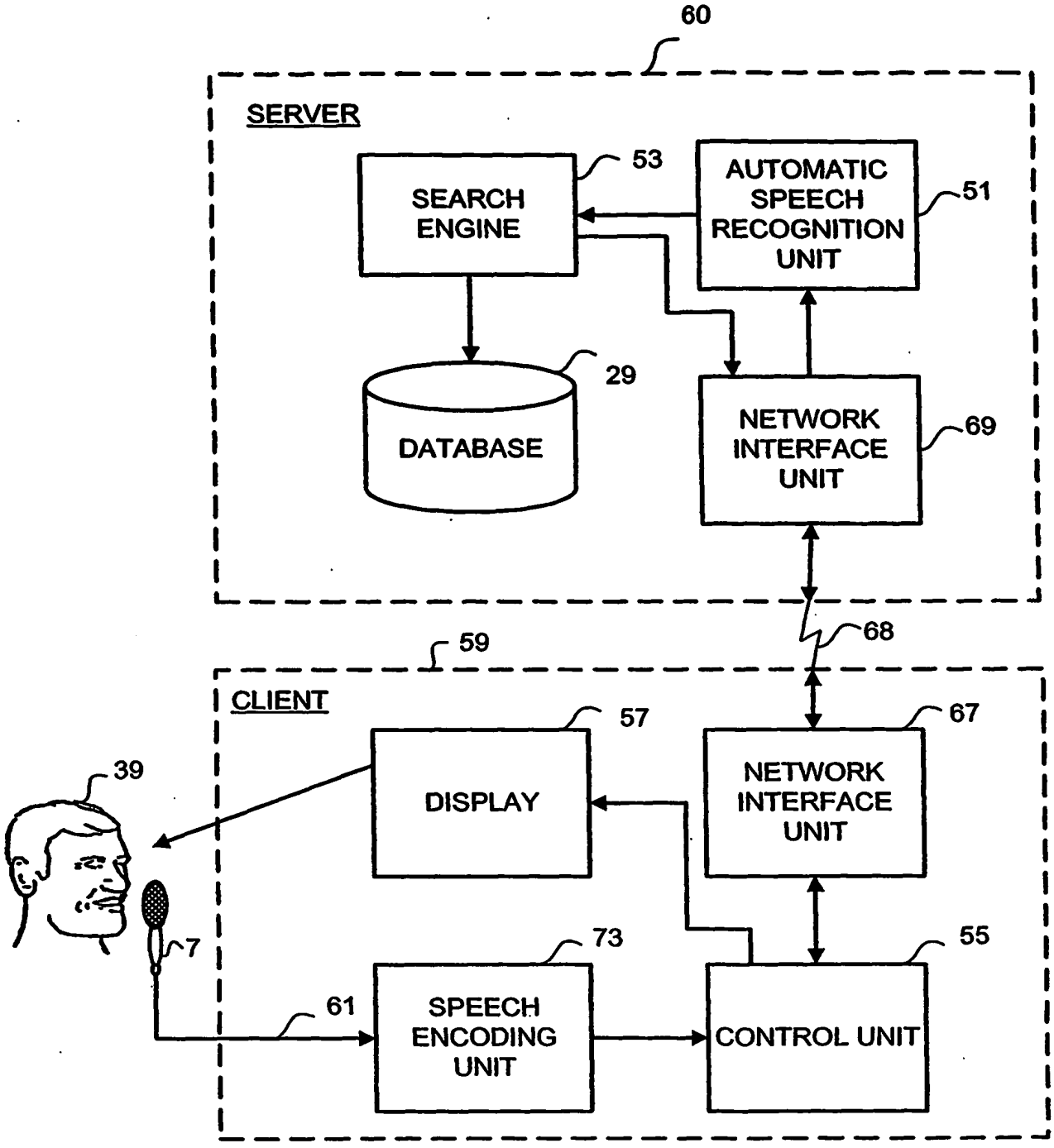
60
SERVER
SEARCH ENGINE
53
AUTOMATIC SPEECH RECOGNITION UNIT
51
DATABASE
29
NETWORK INTERFACE UNIT
69
68
59
CLIENT
57
DISPLAY
67
NETWORK INTERFACE UNIT
39
7
73
SPEECH ENCODING UNIT
61
55
CONTROL UNIT

Fig. 14